DOCUMENT RESUME

ED 335 539 CE 058 779

TITLE	Transition from School to Work. Linking Education and Worksite Training. Report to Congressional Requesters.
INSTITUTION	General Accounting Office, Washington, D.C. Div. of Human Resources.
REPORT NO	GAO/HRD-91-105
PUB DATE	Aug 91
NOTE	55p.
AVAILABLE FROM	U.S. General Accounting Office, P.O. Box 6015, Gaithersburg, MD 20877 (first five copies free; additional copies $2.00 each; 100 or more: 25% discount).
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	*Apprenticeships; *Cooperative Education; *Demonstration Programs; *Educational Improvement; *Education Work Relationship; High Schools; Program Implementation; Program Improvement; School Business Relationship; Two Year Colleges; Vocational Education; *Work Experience Programs

ABSTRACT

A study examined cooperative education programs identified as high quality to see if they could provide school-to-work linkages as do apprenticeship programs in countries such as Germany. Information for the study was obtained from a survey of state directors of cooperative education, who provided data on program participation and identified high quality programs; from the "High School and Beyond" survey; and from site visits to 11 high school and 8 community college cooperative education sites identified by the state directors as exemplary. Apprenticeship literature and five apprenticeship programs also were examined. Some of the findings of the study were the following: (1) high quality cooperative education programs show strong potential to prepare students for work and to enable the work force to compete with those of other nations; (2) essential elements of a high quality program include training plans with specific, ambitious learning objectives, close supervision of students, and close screening of applicants and employers; (3) barriers to expansion of cooperative education are lack of awareness about programs and negative perceptions of program quality; and (4) adopting skill certification of students, such as is done in Germany, could improve programs. Recommendations were made to improve cooperative programs and increase publicity about them. (Four appendixes provide information on sites visited, state cooperative education enrollment, and major contributors to the report. There are 49 references.) (KC)

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United States General Accounting Office

GAO

Report to Congressional Requesters

August 1991

TRANSITION FROM SCHOOL TO WORK

Linking Education and Worksite Training

ED335539

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GAO

United States
General Accounting Office
Washington, D.C. 20548

Human Resources Division

B-243925

August 2, 1991

The Honorable Edward M. Kennedy
Chairman, Committee on Labor and Human Resources
United States Senate

The Honorable William D. Ford
Chairman, Committee on Education and Labor
House of Representatives

The Honorable James H. Scheuer
Chairman, Subcommittee on Education and Health
Joint Economic Committee
Congress of the United States

The Honorable Sam Nunn
United States Senate

This report provides information on apprenticeship-type programs operating in the United States, notably cooperative education programs, that assist youth in the transition from school to work. It also contains recommendations to the Department of Education.

The report was prepared, in part, at the request of the Subcommittee on Education and Health. Also, the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 called on GAO to conduct a similar study.

As agreed with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days after its issue date. At that time we will send copies to the Secretaries of Education and Labor and other interested parties.

This report was prepared under the direction of Franklin Frazier, Director, Education and Employment Issues, who may be reached at (202) 275-1793 if you have any questions concerning the report. Other major contributors are listed in appendix IV.

Lawrence H. Thompson

Lawrence H. Thompson
Assistant Comptroller General

Executive Summary

Purpose

About half of U.S. youth do not go on to college, and they receive little assistance in making the transition from school to work. Many flounder in the labor market upon leaving school, jobless or obtaining jobs with few opportunities for advancement. Beyond the problems these individual youth face, an inadequately skilled young work force undercuts the ability of the United States to compete in the international economy.

In a prior study, GAO identified strategies in competitor countries, such as apprenticeship in Germany, that assist youth in the transition to work. Drawing on these strategies, GAO suggested expansion of school-employer linkages, particularly apprenticeship-type programs.[1] This report examines similar programs operating in the United States, particularly those cooperative education programs identified to GAO as high quality, to see if they could provide such a link.

The report was prepared, in part, at the request of the Joint Economic Committee's Subcommittee on Education and Health. Also, the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 called on GAO to conduct a similar study. GAO examined the benefits and characteristics of high-quality cooperative education programs—those most likely to exhibit the potential for facilitating youth's transition to work—and barriers to expansion.

Background

The United States provides noncollege youth with relatively little assistance for entry to the work force. Generally, U.S. schools direct most of their resources toward preparing students for college. Yet, only about 20 percent of U.S. youth complete a 4-year degree.

In competitor nations, schools and employers typically work together to facilitate youth's work-force entry. In Japan, for example, high school seniors get jobs almost exclusively through school-employer linkages, with employers basing hiring decisions on schools' recommendations. In Germany, roughly two-thirds of all youth participate in apprenticeships.

In the United States, apprenticeship is not widely used, nor is it generally a program for youth; the average age of U.S. apprentices is 29. However, apprenticeship-type programs, notably cooperative education, do provide U.S. youth a formal bridge from school to work. Offered in high schools and 2- and 4-year colleges, cooperative education combines

[1]Training Strategies: Preparing Noncollege Youth for Employment in the U.S. and Foreign Countries (GAO/HRD-90-88, May 11, 1990).

classroom instruction with work experience and on-the-job training related to a student's career goals. GAO examined only high school and community college programs, because its focus is on youth who are not pursuing a baccalaureate degree.

About 430,000 high school students were enrolled in cooperative education programs during the 1989-90 school year. This represents about 8 percent of juniors and seniors, the population most likely to participate. At the community college level, a 1990 survey estimated that less than 3 percent of students were enrolled in cooperative education programs at schools offering such programs.

For this study, GAO surveyed state directors of cooperative education, visited cooperative education programs recommended by experts for their high quality, and visited school-to-apprenticeship programs.

Results in Brief

High-quality cooperative education programs show strong potential to enable the United States to better compete in global markets by improving work-force preparation and facilitating youth's transition from school to work. Both students and employers can benefit from participating in high-quality cooperative education. Students attain work orientation, job skills, and, often, permanent employment. They are also more likely to stay in school and pursue additional education. Employers gain access to a prescreened pool of employees (see pp. 27-29).

Essential elements of the high-quality cooperative education programs GAO reviewed include training plans detailing specific, ambitious learning objectives for students and, for high school students, close supervision by school staff to assure that the training objectives are achieved. Cooperative education programs are less successful when learning objectives are vague or lenient, supervision lax, and requirements not fully implemented (see pp. 21 and 26).

Efforts to expand participation in cooperative education must overcome two major barriers: lack of awareness about programs and a negative perception of cooperative education at the high school level (see pp. 30-31 and 34).

Specific industry-recognized skill standards and certification of mastery of these skills are an integral part of the German youth apprenticeship

system. Similar standards in the United States could improve cooperative education by providing a focus for training plans and a means for evaluating program achievements. The Departments of Labor and Education have begun efforts to develop job skill standards and certification, which may be applicable to cooperative education (see pp. 12-13 and 32-33).

GAO's Analysis

Cooperative Education Appears Beneficial

High-quality cooperative education can benefit both students and employers. School staff reported that quality programs help students see the relevance of education to work. This enhances their motivation to perform well and increases school retention and the likelihood of pursuing postsecondary education. Also, students learn employability skills, acquire marketable skills in their career field, and earn wages. Students often are offered permanent employment upon school completion. Employers told GAO that cooperative education programs are a good source of future employees and help save on recruitment costs (see pp. 27-30).

Elements of Quality Cooperative Education

High-quality cooperative education programs share several features that can enhance effectiveness, including:

- Agreement to training plans by employers, students, and schools detailing both general employability and specific occupational skills that the students are expected to acquire;
- Screening of applicants to assure that they are prepared to meet employer demands;
- Selection of employers who provide training in occupations with career paths;
- Adherence to training agreements outlining the responsibilities of students, schools, and employers; and
- Close supervision of high school students by school staff, such as monthly worksite visits (see pp. 12 and 21-25).

Expansion Faces Barriers

Expansion of cooperative education is constrained by two principal barriers: lack of awareness about programs and negative perceptions of program quality. Many students are unaware of potential benefits from

participation, and employers, even if aware of programs, often do not know how to get involved. Also, high school cooperative education, like vocational education, has a reputation as a "dumping ground" for academically weak students. This reputation did not fit the quality programs we observed. But the extent of high-quality programs is unknown, in part because the Department of Education no longer collects information on high school cooperative education programs (see pp. 25, 30-31, and 34).

The Role of Skill Certification

Unlike the German youth apprenticeship system, cooperative education in the United States does not certify students' skill achievement. In Germany, apprentices who pass tests based on nationally recognized skill standards receive a certificate that serves as a portable credential. Employers use the certificate as evidence of skill achievement in making hiring decisions. Adopting skill standards and certification in U.S. cooperative education could benefit students and employers (see pp. 12-13, 22, and 32).

Recommendations

Improving U.S. work-force preparation to better compete in the global economy will require strong leadership with active federal participation. High-quality cooperative education programs employ a structure with strong potential to facilitate the transition from school to work. To strengthen cooperative education, GAO recommends that the Department of Education:

- Develop national data and conduct evaluations of high school cooperative education programs to help refine and improve program structure, as well as seek opportunities to promote and expand high-quality cooperative education in our nation's schools.
- Request states to encourage schools to provide students with completed training plans together with school and employer assessments, as a form of certification of students' skill attainment. Schools should consider the applicability to training plans of common skill standards being developed under the leadership of the Departments of Education and Labor.

Agency Comments

GAO did not obtain written comments from the Departments of Education and Labor on this report but discussed the matters described in it with their officials and incorporated their comments where appropriate.

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Abbreviations

CO-OP	Cooperative Education
GAO	General Accounting Office
TJTC	Targeted Jobs Tax Credit

Introduction

Background

About 50 percent of youth in the United States do not go on to college, and only about 20 percent of all U.S. youth get a 4-year college degree. By age 19, only 81 percent of all students complete high school, and in some inner-city schools the completion rate is far lower. Despite these figures, insufficient attention is devoted to preparing non-college-bound youth for employment. Generally, U.S. schools direct students toward college, where education and training resources are concentrated. A 1990 GAO study on training strategies for youth in the United States and in competitor nations reported that our country devotes far more resources per youth to educate and train the college-bound than young people not pursuing a college degree.[1] Also, the United States has few institutional bridges linking school to work. Typically, U.S. youth work during their school years, but without a formal link between jobs and school, work is likely to be more of a means to a paycheck than to a career. Generally, schools do not make students aware of the implications of the work experience for future education and employment, and employers do not address the relevance of studies to the workplace. Because of inadequate preparation for employment and lack of assistance in making the transition to work, many U.S. youth struggle in the labor market, unemployed or in jobs without opportunities for advancement.

In addition to the difficulties faced by individuals, a skill-deficient young work force hampers our nation's economic growth, productivity, and ability to compete in a global economy. Slow labor force growth and increasing skill demands likely will exacerbate this problem in the next decade.

In our study on youth training strategies, we reported that some competitor nations may excel because they more effectively prepare their youth for employment. This involves not only strong academic preparation but also strong school-employer linkages. The competitor countries offer youth occupational information and structured work experience in the secondary school years. In Japan, employers establish relationships with high schools and rely on schools' recommendations in making hiring decisions for almost all students. In Germany,[2] schools and employers work together to facilitate youth's transition from school to work through an apprenticeship of about 3 years that provides work-based training supplemented by mandatory school instruction. The

[1]Training Strategies: Preparing Noncollege Youth for Employment in the U.S. and Foreign Countries (GAO/HRD-90-88, May 11, 1990).

[2]Our work, conducted in 1988-89, was limited to West Germany.

German youth apprenticeship system is widely recognized as effective in preparing a skilled young work force German employers train over two-thirds of their youth through apprenticeships.

In the United States, apprenticeship plays a minor role in work-force training. Apprentices constitute less than 0.3 percent of the labor force, and unlike apprenticeship in Europe, apprenticeship in the United States generally is not a program for youth. The average age of apprentices in the United States is 29. Here, school-to-apprenticeship programs that provide high school students, primarily seniors, with apprenticeship training are very limited, involving no more than 3,500 students.

Although the United States makes little use of apprenticeship to train youth and aid their transition to work, cooperative education, an apprenticeship-type program, does provide one such formal bridge from school to work.

Cooperative Education Programs

Cooperative education (co-op) combines classroom instruction with work experience and on-the-job training related to a student's career goals. In effect, co-op placements are short-term apprenticeships, with schools fulfilling the oversight role taken by state or federal agencies in apprenticeship programs.

High school co-op programs are limited largely to juniors and seniors, about 8 percent of whom participate. Less than 3 percent of all community college students participate. (Cooperative education also is available in 4-year colleges.) Following are some common characteristics and terminology, which except as noted, apply to both high school and community college co-op programs:

- Co-op is part of the school curriculum, and students earn credit and receive grades for their co-op experience. Related classroom instruction is required for all high school students and many community college students while enrolled in co-op. Credit and grades are given for both the worksite learning and the related instruction received in the school. Employers provide schools with a performance evaluation of each co-op student.
- Schools establish eligibility requirements for participation in co-op. There are typically grade point average requirements, and high school programs often have attendance requirements. Schools also screen students before referring them to employers for interviews. Community college programs require that students be enrolled in a major field

related to their potential co-op placement. Often, students must have completed some minimum amount of coursework, typically a semester, before placement.

- School co-op programs are operated by co-op coordinators, typically teachers in vocational education. High school coordinators are generally responsible for supervising about 15 to 20 students; community college coordinators often supervise 50 to 60 students. Among coordinator responsibilities are recruiting students and employers, and supervising students at the worksite and in related classroom instruction. These responsibilities may be shared with other faculty.
- Written training agreements, signed by the student, the employer, the coordinator, and sometimes the student's parents, outline the specific responsibilities of each party during the co-op placement. The employer agrees to provide training to the student and assist the school in supervising and assessing student's performance. The school is committed to providing supervision of the student in the school and at the worksite, providing related instruction to the student, and assisting the employer with any problems.
- Each co-op placement requires a training plan that outlines specific learning objectives for the student during the co-op placement. Objectives typically include both general employability skills and specific occupational skills. States often provide training plans or guidance on their content to the schools.
- Co-op employment may be arranged by the school on the student's behalf, or students who find employment on their own may get their school to certify a job as a co-op placement. Placements are for fixed terms, usually a semester in community colleges and often a year in high schools.
- Most co-op placements are paid positions. Pay scales for co-op jobs are generally up to the employer, subject to federal and state minimum wage laws. Fringe benefits are provided at the employer's discretion.
- At the high school level, states establish rules and guidelines for the operation of cooperative education programs. They may cover such matters as coordinators' qualifications, use of training plans, content of training agreements, and frequency of coordinators' worksite visits.

Cooperative education shares many characteristics with German youth apprenticeship. Both include provision of on-the-job training, mandatory related instruction, training agreements, written learning objectives, screening of students, paid employment, and performance assessment. But there are also significant differences between the two systems. Notably, in German youth apprenticeships, participation is for substantially longer duration and training content is guided by national

industry-recognized standards; also, German apprentices take national final examinations, and when they pass these, they receive nationally recognized credentials. Under the German system, committees of industry, union, and government representatives develop apprenticeship curriculums, tests, and certifications.

Federal Funding

Federal funds are not specifically designated for cooperative education at the high school level, although co-op programs can be supported by federal vocational education funds. Federal funding for community college cooperative education comes primarily from title VIII of the Higher Education Act of 1965 as amended, which provides project grants for planning, establishing, and expanding cooperative education programs. The Department of Education awarded about $2.5 million in project grants to 39 community colleges during 1989-90. Some funding also is available under the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990. However, as the act does not designate co-op as a separate program (it is considered a method of instruction), the specific amount of funding dedicated to it is unknown.

The Targeted Jobs Tax Credit (TJTC) provides employers of economically disadvantaged co-op youth with a tax credit based on students' wages.[3] Another subsidy with less restrictive eligibility than TJTC requirements is available to employers through the College Work-Study program.

School-to-Apprenticeship Programs

Apprenticeship combines on-the-job training and related classroom instruction under formal agreements registered with either state or federal apprenticeship agencies. School-to-apprenticeship programs offer high school students part-time apprenticeship positions. The hours they work while in high school count toward the time required to complete the apprenticeship; upon graduation, the youth continue as full-time apprentices. Funding for school-to-apprenticeship programs is available under the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 and from state and local education and labor agencies.

[3]TJTC was an important subsidy to co-op employers in its initial authorization in 1978, with nearly 179,000 secondary and postsecondary co-op students certified as eligible by fiscal year 1981. However, use of the credit declined steadily to only 1,600 slots in 1987, after 1981 amendments restricted eligibility to the economically disadvantaged.

Objectives, Scope, and Methodology

In our previous study on youth training strategies, we suggested that the United States expand school-employer linkages, notably apprenticeship-type programs. As an apprenticeship-type program, cooperative education is a candidate for expansion. In the present study, we examined the potential for high-quality cooperative education to assist youth in the transition from school to work. Also, we briefly examined school-to-apprenticeship programs, but only as a broad overview, as so few youth are enrolled in the programs.[4]

The study was prepared, in part, at the request of the Joint Economic Committee's Subcommittee on Education and Health. Also, the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 included an amendment sponsored by Senator Sam Nunn calling on us to conduct a similar study. In defining the scope of our work, we consulted with subcommittee staff and Senator Nunn's office.

We focused our review on programs recommended as high quality by researchers and practitioners, because of our interest in co-op's potential. We examined program participation, characteristics and benefits of high-quality programs, and barriers to expansion. We confined our work on cooperative education to programs in high schools and 2-year colleges because of our focus on youth who do not pursue a baccalaureate degree.

To obtain information on the extent and characteristics of secondary school cooperative education, we surveyed state directors of cooperative education.[5] They provided data on program participation and program operations, expressed opinions on factors contributing to program effectiveness and barriers to expansion, and offered suggestions for program improvement. Additional information on high school cooperative education is based on an analysis of High School and Beyond, a major national

[4]Other vocational education programs may also include a work component, for example, high school "vocational academies" that provide academic and vocational instruction integrated around a vocational theme; also, "Tech Prep," a new initiative, links high school vocational education with postsecondary education or apprenticeship.

[5]Often, there is no specific position of state director for cooperative education. In such cases, a person in the state vocational education department, under a variety of official titles, is assigned responsibility for cooperative education.

longitudinal data base.[6] Our analysis of participation in community college co-op programs is based on 1990 survey data from Northeastern University's Cooperative Education Research Center. We also conducted a comprehensive review of the literature on cooperative education.

A major portion of the information for our report comes from site visits to high school and community college programs. We gathered detailed information on co-op program operations, and identified factors that contribute to and detract from program effectiveness. We selected sites for visits based on recommendations from cooperative education researchers and practitioners. We asked them to recommend high-quality programs, namely those in operation for at least 2 years that provided quality job placements and had a high percentage of co-op students who were offered permanent jobs from their co-op employers. From these recommendations, we selected 11 high school and 8 community college sites. At each, we conducted structured interviews with co-op coordinators, faculty, and participating employers. In addition, we visited four community colleges and four high schools in developing our work (see app. I for a list of sites visited). Findings from the site visits may not be generalizable to all quality programs.

We also reviewed the apprenticeship literature, spoke with apprenticeship experts, and visited five school-to-apprenticeship programs (see app. II for a list of sites).

Our work was performed between April 1990 and April 1991 in accordance with generally accepted government auditing standards.

[6]High School and Beyond was the best national longitudinal data base available for analyzing participation in cooperative education. The survey involves slightly fewer than 13,000 high school seniors in 1980. It has been followed up every 2 years, but because we were interested in the early transition to work, we used only 1980 data and the first follow-up data from 1982. The analysis was performed by Robert F. Cook, a consultant to GAO on employment and training issues, and verified by GAO.

Participation in Cooperative Education

Relatively few youth participate in high school and community college cooperative education programs. About 8 percent of high school juniors and seniors participated in co-op in the 1989-90 school year, with enrollments concentrated in marketing, trade and industry, and business.[1] Participating high school students come primarily from vocational programs, but students from other programs also are enrolled. Less than 3 percent of community college students were enrolled in co-op in 1989-90.

Relatively Few Participate in High School Programs

About 430,000 high school students were enrolled in cooperative education programs during the 1989-90 school year, according to our survey of state directors. This was less than 4 percent of high school students as a whole. However, participation is generally limited to juniors and seniors, of whom about 8 percent participate. (See app. III for details on state enrollments.) Enrollments were concentrated in three areas: marketing (37 percent of co-op students), trade and industry (19 percent), and business (17 percent).[2]

Access to co-op is not uniform across rural, suburban, and inner-city areas. State directors in our survey reported that rural youth generally have less access to co-op than suburban youth. They also reported that youth in inner cities are likely to have the same or greater access as suburban youth in their states.

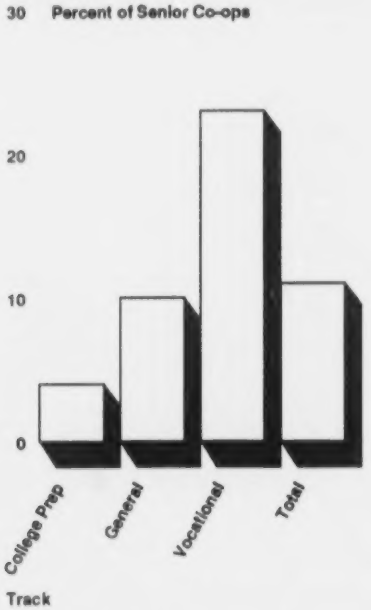
Co-Op Primarily Attracts Vocational Students, but a Broad Mix of Students Participate

Although vocational students were more likely to enroll in high school co-op programs, general and college preparatory students also participated (see fig. 2.1). Males and females participated in co-op in the same proportion as their enrollment as high school seniors; and black, white, and Hispanic youth participated at nearly the same rates relative to their numbers among all high school seniors (see table 2.1).

[1]Marketing placements are predominantly in retail sales; trade and industry includes auto mechanics and auto body work, carpentry, and construction; business placements are typically clerical and secretarial.

[2]Information on areas of enrollment is based on responses from 37 states and the District of Columbia.

Figure 2.1: Seniors Participating in Co-Op Program, by Track (1980)



Source: High School and Beyond

Table 2.1: Racial/Ethnic and Gender Distribution of Co-Op Participants Relative to All Seniors (1980)

Figures in percent

Category	Distribution[a] Co-op participants	All seniors
Race/ethnicity		
White	76	77
Black	12	11
Hispanic	10	9
Other	1	2
Gender		
Male	48	48
Female	52	52

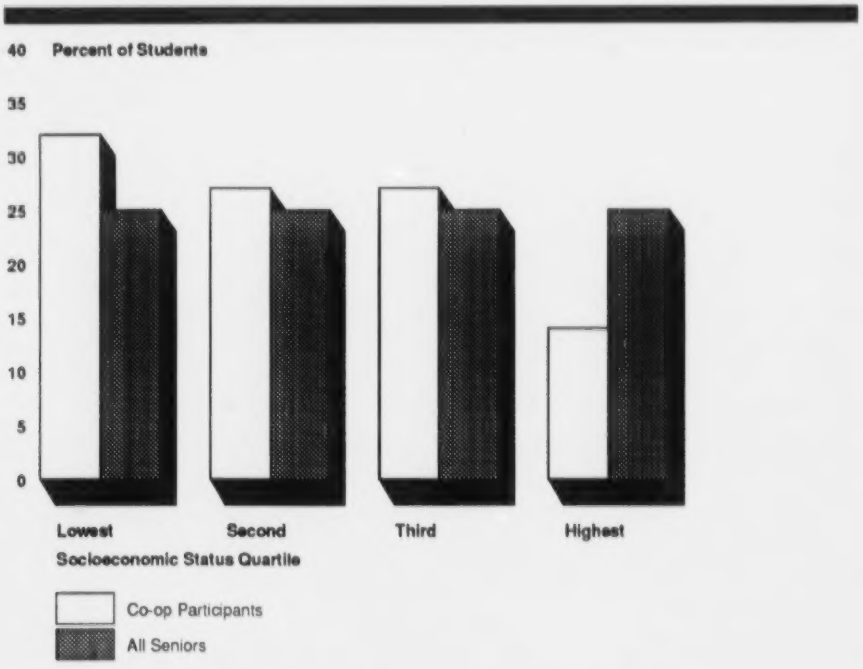
[a]Numbers may not add to 100 percent due to rounding.

Source: High School and Beyond

Co-op is not limited to poor youth or underachievers, although co-op participants were more likely than all high school seniors to come from

homes of lower socioeconomic status and have lower test scores.[3] However, 41 percent of co-op participants came from the upper half of the socioeconomic status distribution, and 30 percent from the upper half of the test score distribution (see figs. 2.2 and 2.3).

Figure 2.2: Seniors' Socioeconomic Status, by Quartiles (1980)

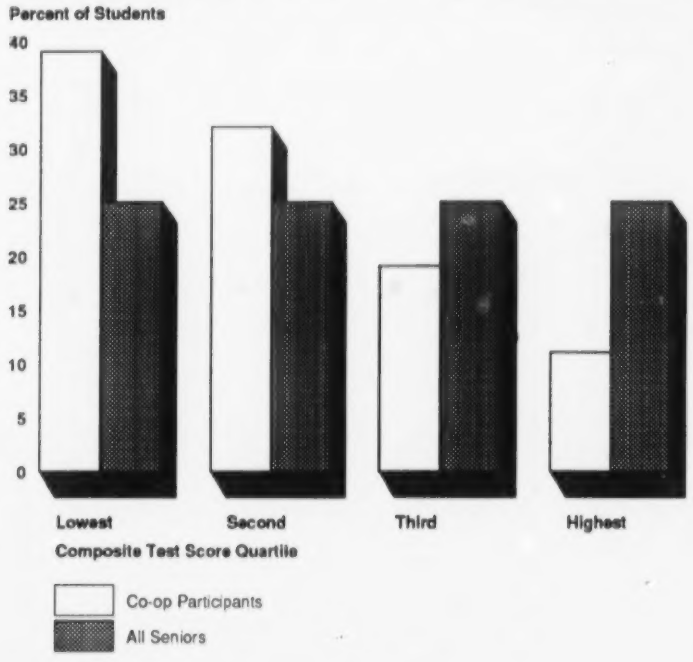


Numbers may not total to 100 percent due to rounding

Source: High School and Beyond

[3]In the survey, socioeconomic status is composed of the father's education and occupation, the mother's education, family income, and a range of material possessions in the parental household. Also, a composite score was calculated from a set of tests administered to the High School and Beyond students that measured vocabulary, reading ability, and mathematics.

Figure 2.3: Seniors' Composite Test Score, by Quartiles (1980)



Numbers may not total to 100 percent due to rounding

Source: High School and Beyond

Relatively Few Participate in Community College Co-Op Programs

Enrollment in co-op at community colleges is limited. Less than 3 percent of community college students participated in co-op in school year 1989-90, according to an annual survey conducted by the Northeastern University Cooperative Education Research Center. Of 332 community colleges responding to its 1989-90 survey, 289 offered cooperative education programs, enrolling some 60,000 students out of total enrollment of about 2.1 million.[4] Estimates we received in our site visits to community colleges conformed with the Northeastern data. Two reported enrollment of over 10 percent of those eligible, but the others generally enrolled less than 3 percent.

Unlike high school programs, community college enrollments are not constrained by a negative reputation for co-op programs, community

[4]Four hundred eighty-eight community colleges were surveyed.

college coordinators told us. Because co-op was seen as potentially beneficial in finding employment, coordinators at most of the programs we visited reported growing interest and enrollment in co-op whenever students began experiencing greater difficulty in finding employment. At some schools in regionally depressed areas, coordinators said that this had been the case for some time, while in some other areas, it coincided with the economic downturn of 1990.

Elements of High-Quality Cooperative Education Programs

Cooperative education programs recommended as high quality by experts share a structure that is conducive to assisting youth in the transition from school to work. The key features shared by these quality programs include (1) written training plans that detail specific learning objectives for students to achieve during their co-op enrollment; (2) screening of students by co-op staff; (3) selection of employers who provide quality training in occupations with career paths; and (4) for high school programs, close supervision of students' training by school staff. Also, co-op coordinators told us that quality programs have strong school administration and faculty support. While most states have requirements for some or all of these features, the requirements are not always sufficiently rigorous to assure program quality, nor are they always fully implemented or enforced, thus preventing co-op from achieving its potential.

Emphasis on Training

High percentages of both high school and community college students work while going to school, but students in cooperative education programs receive school-supervised training in their career field. The high-quality cooperative education programs we visited provide youth with structured socialization to the world of work and job training. These programs are similar to German youth apprenticeship, but with important differences. In particular, cooperative education programs are of much shorter duration and do not employ national skill training standards or certification of skills attained.

Co-Op Offers General Employability Skills and Specific Occupational Skills Training

In the high school programs we visited, the primary focus of training was on developing general employability skills, such as regular attendance, getting along with coworkers and supervisors, and a positive work attitude. Specific occupational skills also were a part of students' training plans. For example, co-op students in "general merchandise retailing" might be required to satisfactorily perform such tasks as operating the cash register and other equipment; processing refunds, exchanges, returns of damaged merchandise, and layaways; facilitating credit applications; reconciling shipping/receiving discrepancies; calculating taxes, discounts, and miscellaneous charges on purchases; and setting up, maintaining, and taking down merchandise displays.[1]

[1]These tasks were part of a much longer list of learning objectives from a training plan used at North Bergen High School, North Bergen, New Jersey.

Compared with high school programs, community college co-op has a stronger focus on specific occupational skills, because community college students typically are well on their way toward a 2-year degree. The acquisition of specific occupational skills is a major part of a student's training plan. Following are examples of learning objectives:

- "... complete approximately one simple income tax return every two hours with 100 percent accuracy."
- "... complete a chemical analysis of 20 percent air, water, and food samples to determine their pollution contents."
- "... draft six different dimensional objects to within 1/32" accuracy on the half scale."
- "... prepare statistical data and support graphs used to define machine utilization...."[2]

Attainment of general employability skills is also seen as important. The employer evaluation form from one community college is typical among the schools we visited. It asked employers to rate students on human relations skills, ability to learn, quality of work, judgment, attitude toward work, dependability, quantity of work performance, attendance, punctuality, and overall performance.

Cooperative education, which lasts a year or less, socializes youth to the labor market and typically offers them initial job skill mastery. In comparison, youth in German apprenticeship have 3 years to become socialized into the world of work, master skills for a specific job, and get preparation for higher level work. Also, the training in German apprenticeship is more formalized than U.S. cooperative education, with national curriculums, examinations, and certification of skills attained. Certification stands as evidence of achievement and is recognized as such throughout the country. German employers have a proactive role in the apprenticeship system, participating in development of curriculums, tests, and certification. In addition, industry associations approve employers for training capability and certify in-company instructors, thus helping assure quality skill preparation.

[2]Cooperative Education Student Handbook, Mercer County Community College, Trenton, New Jersey, 1990.

Related Instruction Supplements Worksite Training

Like German youth apprentices, U.S. co-op students participate in related classroom instruction. Many co-op coordinators reported that students' worksite experiences are often a focal point of discussion in related instruction classes. Related instruction courses in high school programs also typically deal with general world-of-work issues. These include job search skills, resume writing, mock interviews and interview preparation, career planning, basic employment law, taxes and payroll deductions, and workplace behavior. When enrollment in specific occupational areas is sizable, some programs also provide more occupationally specific related instruction. Examples include automotive repair, drafting skills, computer-aided design and manufacturing, and general marketing.

Screening of Students

In addition to having eligibility requirements (for example, a minimum 2.00 grade point average), coordinators, especially in high school programs, may also screen students for such factors as poor attendance, poor attitude, and disciplinary problems. One program we visited evaluated students' reading and writing skills to assure that "students don't drown" in their placement. This program also required students to satisfactorily complete a unit on work-related safety before they could be placed.

Another element of screening is finding a good match between the student and employer. Employers often have specific requirements that students must meet and rely on schools' screening of student applicants to help reduce their recruiting costs. Students are referred to employers for interviews with no guarantee of employment and typically must "earn" the job on their own. Especially at the high school level, coordinators are also concerned that students not have their confidence shaken by being rejected too many times.

Quality Placements Offer Training and a Career Path

Coordinators seek to assure quality training opportunities for their co-op students by carefully screening and monitoring employers and seeking occupational areas that offer the potential for a career path.

Coordinators reported that they are careful to avoid placing students with employers that are primarily looking for cheap labor. Through one or more on-site interviews, the coordinator tries to assess the employers' commitment to training and supervision, their ability to assure a stable

placement (one that will provide the student with enough hours to satisfy requirements to receive co-op credit), their adherence to safety regulations and labor laws, and the quality of their facilities. Once students are placed, regular worksite visits by the coordinator provide an opportunity to evaluate the employer and to follow up on student feedback about the placement.

Students frequently will rotate across a variety of jobs within an organization to gain a broader experience. Job rotation is also a key feature of the German youth apprenticeship system, where, for example, students in manufacturing rotate through the production, assembly, maintenance and service, and quality assurance departments.

Co-op coordinators need to have a long-term view in determining the relationship of a particular placement to a student's career interests. For example, in marketing programs, the most common placements for students are in retail sales in local stores. However, such a placement generally would be accompanied by related instruction in entrepreneurship and management and would provide the student with sufficient experience to later enter a chain store's management training program.

In German youth apprenticeship, students of lesser academic achievement obtain placements in less desired apprenticeships, such as bakeries, that may offer little possibility of permanent employment because of an excess supply. Nonetheless, youth's completion of these apprenticeships is valued by prospective employers in other fields.

Coordinators Provide Continuous Supervision of High School Co-Op Placements

Regular worksite visits are considered vital by many coordinators we visited, especially in high school programs. They reported that close supervision of students at the worksite impresses students with the school's interest in their progress, and students more clearly see the link between school and work. This motivates students to perform well on the job and in school and stimulates interest in pursuing additional education. Employers see that the school is monitoring their compliance with the training agreement, as well as the students' progress. Coordinators' site visits also provide both students and employers an opportunity to express their concerns.

In some schools, regularly scheduled worksite visits are required as often as every 2 weeks, although monthly visits are more common. In the case of a problem placement, coordinators might visit the worksite daily until the problem is resolved. Coordinators tend to visit new co-op

employers more frequently, to monitor the employer as much as the student.

Related classroom instruction provides coordinators with additional contact with students. In high schools, related instruction classes typically meet daily, and coordinators can thus monitor their students' school attendance. Many of the schools we visited have "no school, no work" policies: when students are not in school, coordinators call their employers to make sure that they are not allowed to work that day. (Some students want to work more than they want to go to school.)

Strong School Administration and Faculty Support Necessary for Success

Most of the quality programs we visited noted the importance of strong administration support to their success. Placing co-op in the academic division instead of student services was viewed as very important by several community college coordinators. It helps gain faculty support so they will recommend students, including their better students, to take co-op.

In high schools, perception of co-op as a mainstream program is generally viewed as important to establishing and maintaining administration and faculty support, as well as parental and student interest. Many coordinators we visited stressed that their programs were not treated as a "dumping ground" for academic underachievers. Rather, they enroll high achievers as well as those who have had less academic success.

Another feature of quality programs is a dedicated co-op staff. While certain programmatic characteristics can help provide a positive environment, program design alone cannot guarantee that the "right" people will be involved. Each program we visited had guidelines on qualifications for co-op coordinators, but such subjective traits as enthusiasm, dedication, and motivation were not among them.

State Directors Corroborate Site Visit Findings on Factors Influencing Co-Op Effectiveness

State directors of high school co-op programs corroborated our findings on factors that influence the effectiveness of co-op programs. They stressed quality co-op placements, schools' close supervision of youth at the worksite, a strong link between job training and related instruction, and a program that earns the support of students (see table 3.1).

Table 3.1: Factors That Influence Co-Op Program Effectiveness

Factor	State directors identifying factor as having great or very great influence
Quality of worksite placements	84%
Amount of support by students	76
Extent of supervision of worksite activities	76
Degree to which class instruction is directly related to job training	76
Qualifications of co-op coordinators	76

Quality Structure Requires Rigorous Learning Objectives and Close Supervision

High-quality cooperative education employs a structure that shows strong potential for improving work-force preparation and aiding youth in the transition from school to work. Although almost all co-op programs have such features as training plans and supervision of co-op students, high quality depends in large part on the extent and rigor of the training plans and, for high school students, the extent of supervision. Co-op requirements are not always sufficiently rigorous to assure program quality, and this can prevent programs from meeting their promise. For example, training plans that do not detail sufficiently ambitious learning objectives for students to accomplish during their co-op placement will not provide adequate direction to employers as to students' training needs. Similarly, if supervision requirements call for the coordinator to visit the worksite only once during the student's placement, the coordinator might not be aware of students receiving inadequate training.

Also, co-op requirements are not always fully implemented or enforced. Regarding the latter, for example, most of the state directors in our survey reported that their states require written agreements outlining participants' responsibilities and students' learning objectives, supervision and evaluation of students' work activities, and on-the-job training directly related to students' career objectives. Yet less than two in five state directors reported that making funding contingent upon satisfying state requirements was a primary method of enforcing state guidelines.

Benefits and Problems of Cooperative Education

High-quality cooperative education programs potentially benefit students, employers, and schools, while presenting few problems. Such programs can enhance students' transition from school to work—many youth receive offers of permanent employment from their co-op employers. Employers reported that prescreened co-op students were motivated and a good source of potential permanent employees. Schools reported that co-op programs helped improve retention and, for community colleges, recruitment as well.

Problems experienced by co-op students at the sites we visited were infrequent and few. As full-time students, some co-op participants had difficulty managing their schedules. For some, especially at the high school level, transportation to and from work was a problem. Even among high school co-op students, employers reported that youth's age was not a problem, because of the prescreening and supervision provided by the school.

State directors, employers, and schools suggested several ways to improve cooperative education, including strong government leadership to promote programs and development of skill standards and certification of skills attained. The Departments of Education and Labor are working to develop such standards and certification.

Co-Op Can Provide Benefits for Students

Quality co-op programs show potential for aiding students in the transition from school to work. At most of the schools we visited, a high percentage of co-op students were offered permanent employment with their co-op employer. Several high schools reported that virtually all co-op students received such offers. While there was greater variation among community colleges, every school we visited reported that at least half of their co-op students received permanent job offers from their co-op employer.

Participation in high-quality co-op enhances the likelihood that participants will pursue further education. Quality co-op offers students a "reality check," where they come to realize that to achieve their aspirations of high-paying, satisfying work, they will need more education. In addition, through work, students can see the relevance of their courses, and how those courses fit together to prepare them for a career. The co-op coordinators we talked with felt that many students' academic performance was enhanced by participation in co-op. Several observed higher grade point averages, increased retention of students to get diplomas or complete degrees, and increased likelihood of students going

on to postsecondary education. Often, employers reinforce this new appreciation for education by advising students to continue their education.

Many community college co-op students earn enough money from their co-op job to finance a major portion of the tuition for their 2-year program. Also, co-op can help high school and community college students finance additional education. Coordinators reported that co-op employers often provide graduates who had been co-op employees with jobs while they attend college. Some employers offer high school co-op graduates who remain with them tuition reimbursement for related courses taken at community colleges.

Students surveyed for High School and Beyond responded positively concerning their co-op participation. Of co-op participants, 77 percent felt that co-op had encouraged good work habits, 57 percent reported enjoying co-op more than school, and 25 percent considered co-op to be more important than school.

In the 2 years following graduation from high school, co-op students were more likely to be working, but less likely to be enrolled in postsecondary education than all seniors, according to High School and Beyond survey data. Even so, just over 25 percent of co-op participants reported attending a 2- or 4-year college in fall 1981, and another 8 percent were in trade or technical schools (see table 4.1).

Table 4.1: Students' Activities 2 Years After High School

Figures in percent[a]

	Co-op participants	All seniors
Working for pay	74	57
Military	3	3
2- or 4-year college	25	46
Taking vocational-technical courses	8	7
Homemaker	3	3
On temporary layoff	1	1
Looking for work	6	7
Other	7	6

Note: Although the figures show that co-op students are less likely to pursue postsecondary education than all seniors, cause and effect cannot be determined.

[a]Multiple responses were allowed, so numbers will not add to 100 percent.

Source: High School and Beyond

State directors of cooperative education we surveyed called development of self-confidence, work attitudes, and human relations skills, and better appreciation of the relevance of learning to work the most important benefits students gain from participation in cooperative education (see table 4.2). Acquiring marketable skills was also identified as an important benefit.

Table 4.2: Most Important Benefits of Co-Op for Students

Benefit	State directors identifying most important benefits[a]
Develops work attitudes/human relations skills	75%
Develops self-confidence, self-reliance, responsibility	71
Increases relevance of learning and motivation for study	57
Teaches marketable skills	41

[a]State directors were asked to identify the three most important benefits

Co-Op Can Provide Benefits for Employers

Employers of students in quality programs reported that they get prescreened, motivated entry-level workers. Coordinators are conscientious about screening students to assure a good match so that a continuing relationship will be maintained with the employer. Co-op students' level of motivation is generally higher than that of other entry-level employees, according to co-op employers, because the students are supervised by the school and graded on their co-op performance. With schools providing prescreening and continuous supervision, employers reported that the age of co-op students does not present a problem.

Co-op also can be an effective, economical recruiting device for permanent employees. Employers can "try out" students without being obligated to retain them beyond their co-op term. In addition, employers often achieve cost savings from co-op employment, for example, lower recruiting costs and savings on unemployment insurance—co-op employees are generally exempt from coverage. Finally, co-op employers often do not provide the fringe benefits they give their permanent full-time employees, because co-op employment is part-time.

Co-Op Can Provide Benefits for Schools

Several of the community college program directors we visited were convinced that co-op programs were "money-makers" for their schools. Co-op can aid colleges in student recruitment—some of the community colleges we visited use co-op as their primary message when recruiting in local and regional high schools. Coordinators reported that co-op also

improves retention of high school and community college students by helping them see the relevance of their education to their career plans and, for community college students, by providing needed financial resources.

Schools also benefit from employer linkages. Coordinators said that worksite placements provide students with access to up-to-date equipment that the schools would not then need or that the students otherwise would not have. Likewise, faculty association with employers can lead to improvements in the curriculum, making it more relevant to employers' needs, and greater awareness of current trends and practices in business and industry can make classroom presentations more relevant for students. Employers may also take a more active interest in schools, and some serve on departmental advisory committees. Finally, improved employer linkages and the consequent increase in a school's visibility in the community can enhance the school's relationship with the community.

Relatively Few Problems Found in Co-Op Site Visits, but Barriers to Participation Exist

Coordinators reported few problems with co-op at the sites we visited. They said that in recent years, no students or employers had terminated their participation because of problems with co-op. Barriers to student participation included scheduling and transportation difficulties. In our survey of state directors, employer lack of awareness about programs was the most frequently mentioned barrier to employer participation. Schools faced some problems finding staff time to recruit employers and students and to monitor their program. Local labor market information was often inadequate to enable efficient recruitment of employers.

Problems for Student Participants and Barriers to Participation

Scheduling conflicts present problems for some co-op students and prevent some others from participating. Scheduling problems include difficulty getting into required courses and finding time for both school and work. One metropolitan school district we visited has tried to deal with this problem by allowing co-op employment only after completion of the regular school day so that co-op cannot create scheduling conflicts and students can fit in any courses they need to take.

For some students, especially those in high school, transportation can be a problem. One high school coordinator told us that 10 to 15 excellent job opportunities must be declined each year because no public transportation to the worksites is available. (Students at this high school typically do not have cars.)

Other problems reported by co-op students to their coordinators tended to be general employment concerns that might just as easily apply to non-co-op employment. They include concerns with wages and sexual harassment of female students. Coordinators reported very few instances in which they could not resolve problems satisfactorily. In cases of harassment, the students have been pulled from the worksite as soon as the problem was reported.

A lack of awareness about the potential benefits to be gained in co-op is a major reason students do not participate, according to the coordinators we visited. Some high school faculty and counselors, as well as parents, try to steer students away from co-op, suggesting they focus instead on classes that will benefit them in a college program.

Problems for Employers and Barriers to Participation

Coordinators reported that they had been unable to get some employers to participate because of the part-time limits on student employment. The majority of community college co-op programs run on a parallel basis, in which students maintain their status as full-time students, so they are typically only available to work part-time.

Lack of awareness of co-op among employers limits participation. Over half of the state directors surveyed reported that employers were unaware of co-op programs and that this limited participation (see table 4.3).

Table 4.3: Reasons for Employers Not Participating in Co-Op Programs

Reason	State directors identifying item as a reason for employers not participating
Unaware of co-op programs	57%
Insurance problems related to student employment	45
Employer's regular work force lacks time to adequately train and supervise students	37
Does not know how to get involved in co-op	35

Problems for Schools

Recruiting students for co-op can be difficult, in part due to lack of support from faculty and counselors. Also, parents may oppose their children's participation, fearing that it might restrict their options for college study.

Recruiting employers for co-op placements is time-consuming. Because of inadequate labor market information, coordinators reported having to resort to browsing the Yellow Pages or making cold calls in search of appropriate employers. Other recruiting methods included making contacts through industry or trade groups or publications, and converting a job already held by a student to a co-op job.

To some extent, co-op programs are victims of their own success. Because of the high rate of retention of co-op students as permanent employees after completion of their co-op placement, many co-op slots become unavailable on a year-to-year basis, even though the slots usually reopen in later years. Job development is thus a never-ending task, as great success one year may provide few placements in the next year.

Efforts to Improve Cooperative Education

Co-op coordinators at the sites we visited and state directors in our survey suggested several ways to improve co-op programs and facilitate their expansion. These include certification of students' skill attainment and more government promotion of co-op.

High School Programs Could Benefit From Certification of Student Skill Attainment

Development of industry-recognized skill standards and certification of student skill attainment could improve co-op, according to some high school co-op coordinators. Notably, it could help make co-op more valuable to students in finding employment upon completion of their co-op experience.[1] Also, the use of industry-recognized skill standards could provide a focus for training plans, resulting in more uniformly high-quality training in co-op, and provide a means for evaluating program achievements. Although the high rate of permanent job offers from employers at programs we visited suggests that they are satisfied with youth skill acquisition in co-op, the time spent in co-op is not widely recognized as evidence of skill mastery. Steps toward developing job skill standards and certification are occurring outside of the co-op system, as discussed below.

[1]If certification were adopted and became widespread, it could create a barrier to employment for those unable to participate in co-op. Additional assistance in labor market preparation targeted toward such groups may be necessary.

Assistance From Government, Industry Would Be Valued

State co-op directors reported that they would value assistance from government and from the private sector in making improvements to cooperative education. State directors suggested the need for strong federal and state government leadership to promote cooperative education and develop common reporting requirements. State directors also pointed out the need for more funding, for example, to expand promotional and recruitment activities.

State directors favored employer assistance in developing school curriculums and opportunities for school teachers to spend time at the workplace to update their knowledge. Some state directors commented on the importance of private sector committees to advise the schools. Several directors suggested that employers be given incentives to participate.

Possible Improvements From Outside the Co-Op Structure

The Department of Education is developing standards and performance measures for vocational programs that will apply to co-op programs operating with federal vocational education funds. Also, several initiatives are underway that could lead to skill standards and certification for jobs that may be applicable to co-op placements. The Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 require states to develop standards and measures of performance for secondary and postsecondary vocational education programs. The amendments also establish a grant program to develop national skill standards.

The Department of Labor's Commission on Work-Based Learning plans to develop industry standards for various occupations. The Commission also plans to address accreditation of training programs and certification of skills. In addition, the Secretary of Labor's Commission for Achieving Necessary Skills is working to develop standards. It has been surveying employers to identify needed general employability skills.

President Bush's proposed education reform package, "America 2000," addresses skill standards and certification. Business and labor will be asked to help establish job-related and industry-specific skill standards, built around core proficiencies. They will also be asked to help develop skill certification to accompany these standards. The Secretaries of Education and Labor are expected to lead a public-private partnership to develop voluntary standards for all industries.

Negative Reputation Limits High School Co-Op Participation; Program Evaluations Show Mixed Results

One important factor in the limited co-op enrollment among high school students is a negative reputation that many people have of co-op programs and vocational education in general. Co-op is often seen as part-time work that substitutes for school for students who experience difficulty with academic study, rather than as an opportunity for experiential learning, skill training, and employer contact. Participation in co-op is also thought by many to limit youth from pursuing postsecondary education, because it takes them away from academic courses.

School staff at the quality programs we visited confirmed that such a reputation exists, but most said that it does not affect their program. Also, our study of high-quality programs did not support the negative perception. But the extent of high-quality programs is unknown, in part because the Department of Education no longer collects information on high school cooperative education programs.

Evaluations of co-op programs have been conducted to determine their impact, but the findings often are not consistent with one another, and many of the evaluations are methodologically flawed.[2]

Evaluations generally have been consistent in finding that co-op students have more information about careers and more clearly defined career goals than non-co-op students. Some studies also have found greater job satisfaction and satisfaction with school among co-op students. Among recent graduates, co-op students have been reported to be more likely to be in jobs they see as career-related.

Evaluations have reported mixed results regarding employment and earnings impacts from co-op participation. Some studies found no employment and earnings differences between co-op and non-co-op participants; in others, co-op participation was associated with both lower and higher employment. Both higher and lower post-participation earnings have been reported.

Evaluations have jointly considered high- and low-quality programs, for example, analyzing programs that supervise students at the worksite with those that do not. They have not separately analyzed high-quality programs; such evaluations could better demonstrate the potential for

[2]David Stern and others, "Work Experience for Students in High School and College," Youth & Society, Vol. 21, No. 3, March 1990. See also, J.M. Siedenberg, "Isolating Coop as a Predictor of Monetary Rewards," Journal of Cooperative Education, Vol. 25, No. 3, Spring 1989, for a review of problems in college co-op evaluations.

cooperative education, identify features key to success, and identify elements in need of improvement.

School-to-Apprenticeship Programs

As with cooperative education, school-to-apprenticeship programs combine school with work to give youth structured skill training. In 1977 and 1978, the Department of Labor funded eight demonstration projects that were favorably assessed, and two continue to operate. There recently has been renewed interest in school-to-apprenticeship, and other programs have been started. Program officials report that today's programs offer benefits similar to those identified in the demonstration projects. While enrollment is growing, it remains low—no more than 3,500 students participated nationwide in 1990. Among the barriers to widespread use of school-to-apprenticeship are implementation difficulties and legal and insurance problems for apprenticeship of youth below age 18 in hazardous occupations.

Background

School-to-apprenticeship programs are similar to cooperative education: both involve formalized on-the-job training and require related classroom instruction. Sometimes, school-to-apprenticeships are part of co-op, with co-op coordinators recruiting the youth, assisting in placement, and arranging for related instruction.

Generally, youth in school-to-apprenticeship programs enter an apprenticeship in their senior year in high school, work part-time, receive on-the-job training and related instruction, and enter full-time apprenticeship upon graduation. Hours worked while in high school count toward the time required to complete the apprenticeship. Apprenticeship generally lasts 2 to 4 years after high school graduation. When the apprenticeship is completed, the worker receives a certificate that confers journeyman's status, which is often recognized throughout the industry.

Demonstrations in Youth Apprenticeship Judged Successful

Eight youth apprenticeship projects funded by the Department of Labor in 1977 and 1978 successfully demonstrated the feasibility of starting apprenticeship during high school, according to a 1981 evaluation.[1] Students in the programs were more likely to continue in jobs related to their training than were other high school students who had participated in vocational education. Also, students and employers expressed strong satisfaction with their participation in the youth apprenticeship projects.

[1]CSR, Inc., Report on Impacts: Study of New Youth Initiatives in Apprenticeship (Washington, D.C.: 1981).

Sites for the demonstrations were Cleveland, Houston, Nashville, New Orleans, Des Moines, and Rockford (Illinois), and New Jersey and Rhode Island (both statewide). Four administrative models were employed: the programs were operated by local community colleges, individual school districts, state departments of education, and private, nonprofit organizations. All the programs were monitored by the Department of Labor's Bureau of Apprenticeship and Training. At several sites, program coordinators used established cooperative education programs as a recruiting base.

Through mid-1981, the projects had registered over 3,000 student apprentices. About 60 percent of the participants were placed in machine trades jobs. Other occupations included welder, auto body worker, child care attendant, baker, butcher, dental lab technician, and upholsterer. Costs for the projects were relatively low. Over 4 years, the Department of Labor reported annual average costs of $1,384 per apprentice, mostly for wage subsidies to employers.

Youth Apprenticeship Continued Beyond Demonstration Projects

Several programs that started as Department of Labor-funded demonstration projects continued for some time after federal funding ended. The Cleveland project continued until 1990 and expanded to several other sites in Ohio that operate today. The New Jersey and Des Moines programs are still operating.

School-to-apprenticeship programs independently initiated since the Department of Labor demonstration projects continue to give students the opportunity to begin apprenticeship training while completing the required coursework for high school graduation. Most youth apprenticeship programs

- require participants to complete high school;
- give students on-the-job training with up-to-date equipment;
- provide school credit for the on-the-job training as experiential learning;
- involve employers in the planning of programs and in the development of related instruction to meet the training needs of both employers and apprentices; and
- assist in addressing labor shortages in certain skills areas.

Roles and Responsibilities of Parties in Youth Apprenticeship

Students, employers, and schools all bear responsibilities under apprenticeship agreements. Students must satisfy specific eligibility requirements for entry to an apprenticeship program, including age, attendance, grade point average, specific skills, and behavior. Once admitted, they must maintain attendance, academic, and other requirements imposed by the program.

Employers are responsible for developing and/or coordinating a school-approved training program and registering the apprenticeship program with the appropriate state or federal apprenticeship agency. Employers enter into an agreement with the student apprentice, the school, and the parent or guardian, agreeing to abide by applicable state and federal laws concerning apprenticeship training.

Schools are responsible for making students aware of apprenticeship programs as options to students for skilled, well-paying careers, assisting them in selecting apprenticeable occupations; and screening them for program entry. In addition, schools provide the students with appropriate related instruction and coordinate and provide counseling, supervision, and record-keeping services for the on-the-job portion of their experiences.

Youth Apprenticeship Benefits Are Substantial to All Parties

Program officials reported that all parties to youth apprenticeship benefit from their participation. Students begin apprenticeship at an earlier age than would otherwise be likely and earn wages while completing high school. They are in programs that will require postsecondary education as related instruction after high school graduation. Also, programs generally offer skill certification (conferring of journeyman status), which may be portable both within and across states, because programs are registered and often employ industry-recognized standards.

Apprenticeship programs enable employers to address their needs for skilled workers by accessing a new pool of labor from which to recruit. Schools benefit by gaining a direct linkage with business and industry. For example, schools have modified vocational curriculums after gaining increased knowledge of employer needs through association with apprenticeship.

Few Youth Participate in School-to-Apprenticeship Programs

There has been renewed public and private interest in school-to-apprenticeship in the past few years, resulting in several new programs.[2] But, although enrollments have increased, no more than 3,500 students nationwide participated in school-to-apprenticeship programs in 1990. The programs we visited that were begun since 1989 have small enrollments, fewer than a dozen students. Some apprenticeship and school officials commented on the complexities in implementing school-to-apprenticeship programs—registration with the state oversight body can take a year or more. However, they also noted that implementation was eased by working within the existing cooperative education system, to recruit students, for example.

Barriers to Expansion of School-to-Apprenticeship Programs

The complexities in implementing school-to-apprenticeship programs are one of several barriers to their widespread use. Another barrier is a lack of support from the apprenticeship community. Traditionally, the potential supply of apprentices has exceeded the demand, so that recruitment of young people is seen as unnecessary. Also, school-to-apprenticeship programs reduce the control of program operators over selection of entrants; and, in new programs, school-to-apprenticeships may create conflicts if employers bypass existing employees who were waiting for the opportunity to enter a program.

Other barriers include legal and insurance problems for apprenticeship of youth below age 18 in hazardous occupations; difficulty in arranging required postsecondary classroom instruction for small numbers of apprentices (many employers have no more than three apprentices); a lack of support for apprenticeship among educators; and problems with joint employer-union apprenticeship among those who are resistant to involvement with unions.

[2]The Department of Labor is supporting a series of demonstration projects that use work-based learning, similar to apprenticeship, to link school to work. The projects integrate classroom instruction with worksite learning and training.

Conclusions and Recommendations

High-quality cooperative education programs can help youth prepare for the work force and make the transition from school to work. Quality programs establish school-employer linkages by offering students both training and employer contacts for entry to careers. Participating employers value co-op programs as a potential source of future employees.

Co-op staffs see that developing good working relationships with employers is as important as serving their student population. Although there is a widely held perception that employers are reluctant to hire young people, employers reported that co-op youth are welcomed. Employers attribute their satisfaction with co-op youth largely to the prescreening and supervision provided by the schools.

School staff reported few problems with co-op. However, relatively few youth and employers participate in the programs, in large part because they lack awareness about co-op and because of a bias against programs not specifically preparing students for college. Lack of awareness about cooperative education is primarily due to a lack of promotion and employer recruitment. School staff often experience difficulty finding time to do the intensive employer recruitment they would like and still perform tasks necessary for effective program operations. They also are hampered in employer recruitment by a lack of comprehensive labor market information.

Cooperative education shares many features with German youth apprenticeship, which is recognized as effective in preparing a skilled young work force. But there are significant differences between the two systems. Notably, German youth spend substantially more time in apprenticeship and receive nationally recognized credentials certifying successful completion. Although of shorter duration, high-quality U.S. co-op can provide youth with the opportunity to achieve initial skill mastery. Also, high-quality co-op training plans, while currently used primarily for grading purposes, appear capable of filling the role of certification. Providing co-op students with completed copies of their training plans that show learning objectives achieved, along with the employer's and coordinator's assessment, could give students a potentially valuable certificate to present to prospective (post-co-op) employers.

Recommendations

Improving U.S. work-force preparation to better compete in the global economy will require strong leadership with active federal participation. High-quality cooperative education programs employ a structure with strong potential for improving the transition from school to work. To strengthen cooperative education programs, we recommend that the Department of Education:

- Develop national data and conduct evaluations of high school cooperative education programs to help refine and improve program structure, as well as seek opportunities to promote and expand high-quality cooperative education in our nation's schools.
- Request states to encourage schools to provide students with completed training plans together with school and employer assessments, as a form of certification of students' skill attainment. Schools should consider the applicability to training plans of common skill standards being developed under the leadership of the Departments of Education and Labor.

Cooperative Education Program Sites Visited

We visited 27 cooperative education programs. At 11 high schools and 8 community colleges, we used structured interviews. The community colleges were recommended for their high quality by experts on cooperative education; high schools were recommended for their high quality by state vocational education directors. We also visited eight sites in developing our work. The structured and background interview sites are listed below:

Structured Interview Sites

High Schools

Pensacola High School, Pensacola, Florida
Palm Beach Gardens High School, Palm Beach, Florida
St. Clair County Technical Education Center, Port Huron, Michigan
Hillsborough High School, Belle Mead, New Jersey
Hopewell Valley Regional High School, Pennington, New Jersey
North Bergen High School, North Bergen, New Jersey
Rancocas Valley High School, Mt. Holly, New Jersey
Newberg High School, Newberg, Oregon
Oregon City High School, Oregon City, Oregon
Portland City School District, Portland, Oregon
Evergreen High School, Vancouver, Washington

Community Colleges

Broward Community College, Davie, Florida
Miami-Dade Community College, South Campus, Miami, Florida
Howard Community College, Columbia, Maryland
Holyoke Community College, Holyoke, Massachusetts
Macomb Community College, Fraser, Michigan
County College of Morris, Randolph, New Jersey
Mercer County Community College, Trenton, New Jersey
Lane Community College, Eugene, Oregon

Background Interview Sites

High Schools	Wichita Public Schools, Wichita, Kansas Kenwood High School, Baltimore County, Maryland Lincoln Public Schools, Lincoln, Nebraska Waverly High School, Waverly, Nebraska
Community Colleges	Community College of Baltimore, Baltimore, Maryland Montgomery College, Takoma Park, Maryland Prince George's Community College, Largo, Maryland Northern Virginia Community College, Alexandria, Virginia

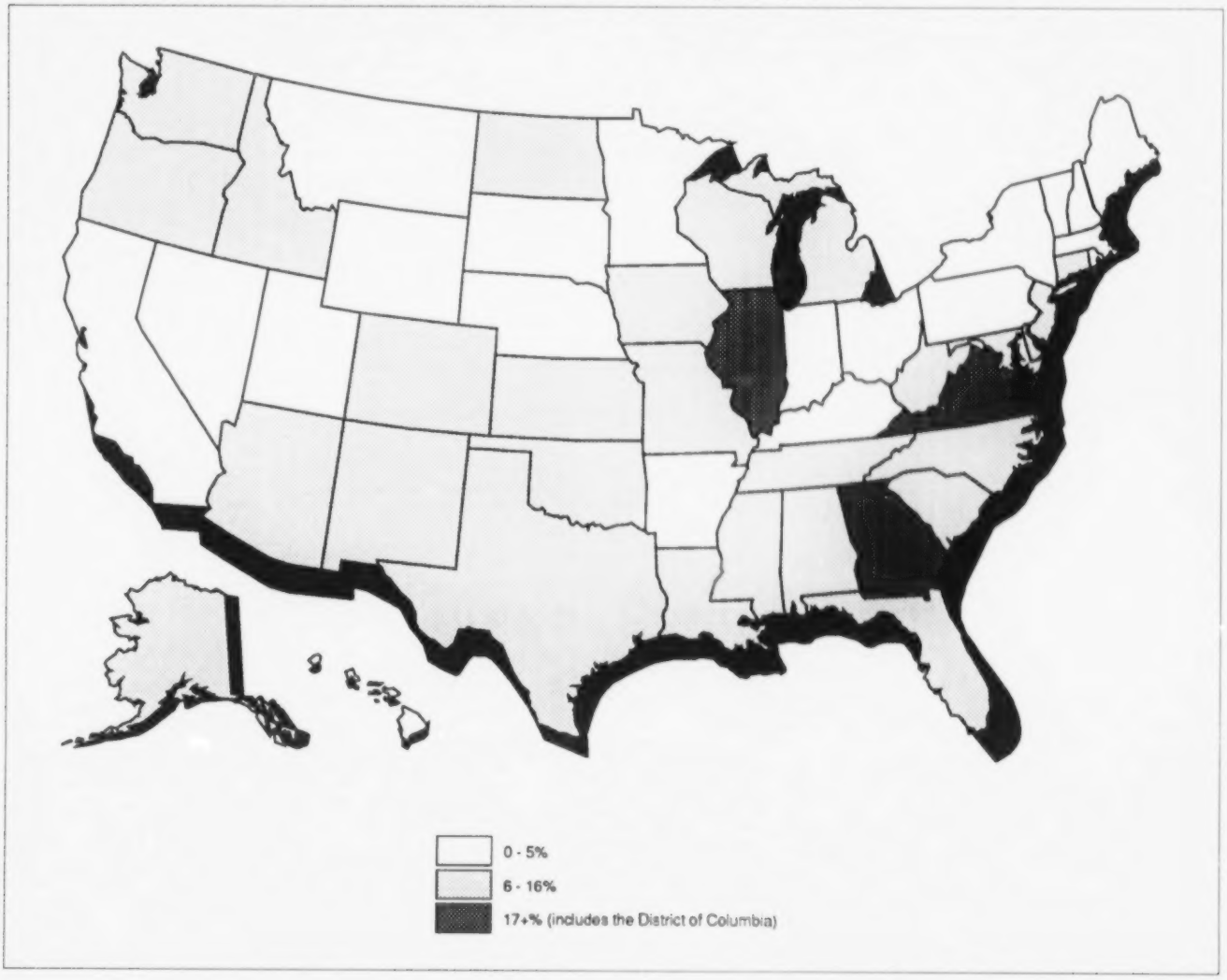
School-to-Apprenticeship Program Sites Visited

Kent Skills Center, Grand Rapids, Michigan
Kalamazoo Valley Intermediate School District, Kalamazoo, Michigan
Great Oaks Joint Vocational School District, Cincinnati, Ohio
Massanutten Vocational Technical Center, Harrisonburg, Virginia
Valley Vocational Technical Center, Fischersville, Virginia

State Cooperative Education Enrollment

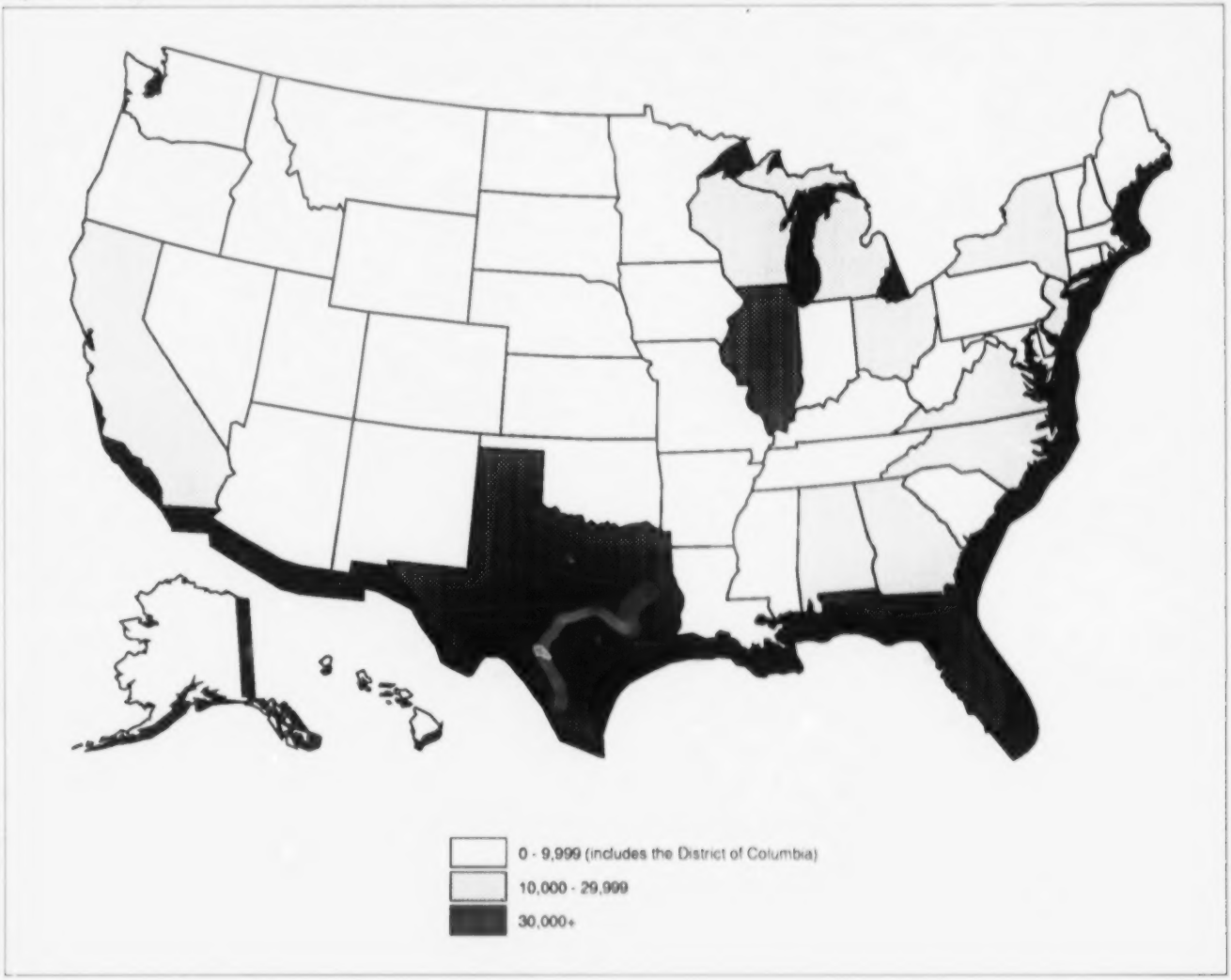
Georgia, the District of Columbia, Virginia, and Illinois had the highest proportion of their eligible high school students enrolled in cooperative education in 1989-90. Nineteen states enrolled no more than 5 percent of eligible students (see fig. III.1).

Figure III.1: Proportion of Eligible High School Students Enrolled in Co-Op by State (1989-90)



Texas, Illinois, and Florida were the only states enrolling more than 30,000 students in co-op, and 37 states had fewer than 10,000 students enrolled (see fig. III.2).

Figure III.2: High School Student Co-Op Enrollment by State (1989-90)



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